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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,375	08/20/2003	Ivan Pawlenko	Pawlenko 111-24	6422
46850	7590	04/20/2005	EXAMINER	
STEVE MENDELSON			WALBERG, TERESA J	
MENDELSON & ASSOCIATES, P.C.			ART UNIT	
1515 MARKET STREET			PAPER NUMBER	
SUITE 715			3753	
PHILADELPHIA, PA 19102			DATE MAILED: 04/20/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/644,375	<b>Applicant(s)</b> PAWLENKO ET AL.	
	<b>Examiner</b> Teresa J. Walberg	<b>Art Unit</b> 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-5, 9-12, 14, 15, 17, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilson et al (4,072,188).

Wilson et al disclose a method and apparatus for cooling heat generating electrical equipment including a heat sink (26) having a plate (44), a frame (46), and a deformable metal membrane (31) attached to the plate (44) to define an enclosed volume (50), wherein when the heat sink (26) is positioned in proximity to the equipment and a force is applied, the membrane conforms to the surface profile, the membrane (31) having a cross sectional area greater than that of the frame (46), the enclosed volume (50) including fittings (34, 36) to fill the volume (50) with a substance, such as water (col. 5, line 24), and to circulate fluid through the volume (50).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al (4,072,188) in view of Flint et al (5,022,462).

Wilson et al, as discussed above, discloses the claimed structure with the exception of the plate having a corrugated shape and the membrane forming a pattern of creases.

Flint et al teaches using a corrugated upper plate (see 126 in Fig. 10) and a membrane forming a pattern of creases (see 44 in Fig. 3) in a circuit cooling heat exchanger.

It would have been obvious in view of Flint et al to use a corrugated upper plate in the cooling device of Wilson et al for improved radiation of heat, and to form the membrane in a pattern of creases to better contact the chip surfaces on the circuit board.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al (4,072,188) in view of Andersson et al (3,649,738).

Wilson et al, as discussed above, discloses the claimed structure with the exception of air pressure being applied to the enclosed volume.

Andersson et al teaches providing air pressure to a cooling member in a circuit cooling heat exchanger. See col. 2, lines 5-6.

It would have been obvious in view of Andersson et al to use air pressure in the cooling device of Wilson et al in order to avoid the leakage problems found with liquid coolants.

6. Claims 2, 7, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al (4,072,188) in view of Samarov et al (3,649,738).

Wilson et al, as discussed above, discloses the claimed structure with the exception of the membrane retaining a conformed shape when the force is removed and the outer surface having a dielectric layer.

Samarov et al teaches using a heat transfer membrane which retains a conformed shape when force is removed and the outer surface of the membrane having a dielectric layer.

It would have been obvious in view of Andersson et al to use a membrane which retains a conformed shape when force is removed in the cooling device of Wilson et al to improve the heat transfer and to reduce stress on the membrane from repeated flexing and to use a dielectric outer surface of the membrane in the cooling device of Wilson et al in order to avoid undesired electrical contact with the circuit that could be caused by an electrically conduction heat transfer membrane.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Malhammar and Sen et al are cited to show conformal heat transfer membranes.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Teresa J. Walberg  
Primary Examiner  
Art Unit 3753

tjw